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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,224	07/30/2001	Thomas J. Schall	019934-001710US	5559

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EXAMINER	
BELYAVSKYI, MICHAIL A	
ART UNIT	**PAPER NUMBER**
1644	15

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,224	SCHALL ET AL.	
	Examiner	Art Unit	
	Michail A Belyavskyi	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) *1-20 and 39-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-38, 44-49 and 50-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

1 Applicant's amendment, filed 02/03/03 (Paper No. 11), is acknowledged.

Claims 1-61 are pending.

2. Applicant's election of Group V, claims 21-38 and 44-49 (now claims 21-38, 44-49 and 50-61 in Paper No. 11 and : a) GVHD as a species of immune disorder, b) rheumatoid arthritis as a species of chronic inflammatory disease, c) bone marrow as a species of an organ in Paper NO:14 are acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Upon further consideration the prior art search has been extended to include all species of immune disorder recited in claim 24 and all species of chronic inflammatory disease recited in claim 33 and all species of transplanted organ recited in claim 37

Claims 1-20 and 39-43 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b) as being drawn to nonelected inventions.

Claims 21-38, 44-49 and 50-61 are being examined

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention *to which the claims are directed.*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 26, 31, 36, 37 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. Claims 26 and 46 are indefinite and ambiguous in the recitation of "monitoring a symptom of the patient to detect amelioration of the symptom responsive to the administering step". The characteristics and metes and bounds of "a symptom" are unclear , indefinite, not defined by the claim and the specification does not provide a standard for ascertaining what "symptom to monitor". Moreover, it is unclear if symptom that would be monitoring is the same symptom responsive to the administering step?

B. Claim 31 is indefinite and ambiguous in the recitation of "wherein IFN-α levels of the patient...". There is no antecedent basis for this limitation in the base claim 21.

C. Claim 36 is indefinite and ambiguous in the recitation of "wherein the patient is suffering from a type TH1 immune response". There is no antecedent basis for this limitation in the claim 30.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 21-38, 44-49 and 50-61 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of inhibiting proliferation of the peripheral blood mononuclear cells , reducing cytokine production of monocytes and reducing surface expression of classical class I and Class II MHC molecules by monocytes *in vitro,* using rhesus CMV IL-10, does not reasonably provide enablement for: 1) a therapeutic or prophylactic method for treating *any* immune disorder, such as the ones recited in claim 24, or allergic response, as recited in claim 34, or asthma, as recited in claim 35 , or leukemia, as recited in claim 38, or *any* chronic inflammatory disease, such as the ones recited in claim 33 or type Th1 immune response to any transplanted graft, for example bone marrow, as recited in claims 36-37, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 21-38 and 50-55 or 2) a therapeutic or prophylactic method for treating *any* inflammatory response , such as the ones recited in claim 49, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 44-49 and 56-61. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification does not enable one of skill in the art to practice the invention as claimed without undue experimentation.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, limited working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention.

The specification discloses that incubation of peripheral blood mononuclear cells with rhesus CMV IL-10 *in vitro* results in inhibiting proliferation of monocytes, reducing cytokine production of monocytes and reducing surface expression of class I and Class II MHC molecules by monocytes (see Examples 1 to 36 of the specification as filed).

The specification does not adequately teach how to effectively use a therapeutic or prophylactic method for treating an immune disorder , comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 21-28, 32, 33, 36, 37 and 50-55 or 2) a therapeutic or prophylactic method for treating an inflammatory response , comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 44-49 and 56-61. Moreover, no animals were used as model system for the therapeutic or prophylactic method for treating an immune disorder or for treating an inflammatory response , comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10. The examples 36-46 are only general approaches or strategies that may be used. It is not clear that reliance on these general strategies accurately reflects the relative mammal efficacy of the claimed therapeutic strategy. Since there is no animal model system in the specification to treat an immune disorder , for example GVHD as recited in claim 24, or allergic response, as recited in claim 34, or asthma, as recited in claim 35 , or leukemia, as recited in claim 38, or *any* chronic inflammatory disease, for example rheumatoid arthritis as recited in claim 33 or type Th1 immune response to any transplanted graft, for example bone marrow, as recited in claims 36-37, or an inflammatory response, for example chronic inflammatory disease rheumatoid arthritis, as recited in claim 49, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, it is unpredictable how to correlate test tube results with *in vivo* studies. Since the method to treat an immune disorder , for example GVHD as recited in claim 24, or allergic response, as recited in claim 34, or asthma, as recited in claim 35 , or leukemia, as recited in claim 38, or *any* chronic inflammatory disease, for example rheumatoid arthritis as recited in claim 33 or type Th1 immune response to any transplanted graft, for example bone marrow, as recited in claims 36-37, or an inflammatory response, for example chronic inflammatory disease rheumatoid arthritis, as recited in claim 49, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, can be species- and model-dependent, it is not clear that reliance on the test tube studies accurately reflects the relative human efficacy of the claimed therapeutic strategy. The specification does not adequately teach how to effectively treat an immune disorder or an inflammatory response comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10.

The specification does not teach how to extrapolate data obtained from *in vitro* studies to the development of effective *in vivo* mammalian including human therapeutic treatment, commensurate in scope with the claimed invention. Lockridge et al. (IDS) teach that CMV IL-10 is a multifunctional cytokines that has various effects on inflammation and cytokine production and that further studies will be necessary to determine its role in the immunopathogenesis. (see entire document, page 278 in particular). Additionally, Bals R., et al., (Infection and Immunity, 1999, v.67, pages 6084-6089) teach that functional studies have been restricted primarily to *in vitro* experiments with purified peptides and do not necessarily reflect the complexity of *in vivo* interaction, such as synergism and antagonism between individual substances (see overlapping pages 6087-6088 in particular). Mountain reviews in Trends Biotechnol (18:119-128, 2000) that while much progress has been made in the field of gene therapy, developing effective gene therapies is much more demanding than originally anticipated (e.g., pg 120, middle); and that most of the difficulty lies with the development of effective vectors since the vectors in use all have both advantages and disadvantages (e.g., Table 4). Additionally, an effective protocol to treat an immune disorder or an inflammatory response comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, is subject to a number of factors which enter the picture beyond simply the administration of the therapeutic composition in an acceptable formulation. Demonstrating that contacting PBMCs with rhesus CMV IL-10 inhibits PBMC proliferation and cytokine production and reduces monocytes surface expression of classical class I and class II MHC cannot alone support the predictability of a pharmaceutically acceptable dose of rhesus CMV IL-10 for a therapeutic or prophylactic method for treating an immune disorder or an inflammatory response through administration of the appropriate formulation. Van Noort et al. (International Review of Cytology, 1998) indicate factors that effect autoimmune disease such as genetic, environmental and hormonal (Page 176, Paragraph 3). The ability of a host to suppress an immune disorder or an inflammatory response will vary depending upon factors such as the condition of the host and burden of disease.

The specification does not provide sufficient teaching as to how it can be assessed that treatment of an immune disorder , for example GVHD as recited in claim 24, or allergic response, as recited in claim 34, or asthma, as recited in claim 35 , or leukemia, as recited in claim 38, or *any* chronic inflammatory disease, for example rheumatoid arthritis as recited in claim 33 or type Th1 immune response to any transplanted graft, for example bone marrow, as recited in claims 36-37, or an inflammatory response, for example chronic inflammatory disease rheumatoid arthritis, as recited in claim 49, was achieved after the administering of a pharmaceutically acceptable dose of rhesus CMV IL-10.

Also an issue is that the burden of enabling prophylactic an immune disorder or an inflammatory response (i.e. the need for additional testing) would be greater than that of enabling a treatment due to the need to screen those humans susceptible to such diseases and the difficulty of proof that the administration of the drug was the agent that acted to prevent the condition. Further, the specification does not provide guidance as to how one skilled in the art would go about screening those patients susceptible to an immune disorder or an inflammatory response within the scope of the presently claimed invention. Nor is guidance provided as to a specific

protocol to be utilized in order to prove the efficacy of the presently claimed compounds in preventing these disease states. Accordingly, undue experimentation is necessary to determine screening and testing protocols to demonstrate the efficacy of the presently claimed invention.

Thus, Applicant has not provided sufficient guidance to enable one skill in the art to use claimed: 1) a therapeutic or prophylactic method for treating *any* immune disorder, such as the ones recited in claim 24, or allergic response, as recited in claim 34, or asthma, as recited in claim 35 , or leukemia, as recited in claim 38, or *any* chronic inflammatory disease, such as the ones recited in claim 33 or type Th1 immune response to any transplanted graft, for example bone marrow, as recited in claims 36-37, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 21-38 and 50-55 or 2) a therapeutic or prophylactic method for treating *any* inflammatory response , such as the ones recited in claim 49, comprising administering a pharmaceutically acceptable dose of rhesus CMV IL-10, as claimed in claims 44-49 and 56-61 in manner reasonably correlated with the scope of the claims. The scope of the claims must bear a reasonable correlation with the scope of enablement. *In re Fisher*, 166 USPQ 18(CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute.

In view of the quantity of experimentation necessary, the unpredictability of the art, the lack of sufficient guidance in the specification, the limited working examples, and the limited amount of direction provided given the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

8. No claim is allowed.

9. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which Applicant may become aware in the specification.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michail Belyavskyi whose telephone number is (703) 308-4232. The examiner can normally be reached Monday through Friday from 9:00 AM to 5:30 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-3014.

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July 14, 2003

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